Remarks

The above Amendments and these Remarks are in reply to the Office Action mailed on October 20, 2005.

I.   Summary of Examiner's Rejections

Prior to the Office Action mailed October 20, 2005, Claims 1-20 were pending in the Application. In the Office Action, Claims 1-20 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting. Claims 1, 4-11, 13-15 and 20 were rejected under 35 U.S.C. 102(b) as being anticipated by Nageswaran U.S. Patent No. 5,991,792 (hereinafter Nageswaran). Claims 2-3 and 12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nageswaran in view of June et al. U.S. Pub. 2004/0045008 A1 (hereinafter June). Claims 16-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Nageswaran in view of Sharma et al. U.S. Patent No. 6,182,109 (hereinafter Sharma).

II.   Summary of Applicant's Amendment

Applicant does not agree with the above rejections for at least the reasons presented in the Responses filed on April 11, 2005 and July 20, 2005. However, for the purpose of expediting prosecution of this application, Applicant herein presents some amendments that will further highlight the distinctions between claimed embodiments of the present invention and the cited references, and request that these amendments be entered in the application. The present Response amends Claims 1, 5, 8-15, 17, 18 and 20; and adds new claims 21-26, leaving for the Examiner's present consideration Claims 1-26. Reconsideration of the Application, as amended, is respectfully requested. No new matter has been added. Applicant respectfully reserves the right to prosecute any originally presented or canceled claims in a continuing or future application.

III.   Provisional Double Patenting Rejection

In the Office Action mailed October 20, 2005, Claims 1-20 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 10/719,611. Applicant respectfully acknowledges that this is a provisional rejection and is prepared to address it further if the double patenting rejection is made final, including the filing of a terminal disclaimer(s) should it become necessary.

IV.   Claim Rejections under 35 U.S.C. §102(b)

In the Office Action mailed on October 20, 2005, Claims 1, 4-11, 13-15 and 20 were rejected under 35 U.S.C. 102(b) as being anticipated by Nageswaran.

Claim 1

Claim 1 has been hereby amended to more explicitly define the embodiment recited therein. As amended, Claim 1 recites:

> 1. A computer program product for execution by a server computer for performing resource pool size maintenance for an application server, comprising:
> computer code for maintaining a pool of resources for the application server;
> computer code for maintaining a first plurality of resources that have been determined to be at least one of not created successfully and not able to be refreshed, in an unavailable deque;
> computer code for maintaining a second plurality of resources that have been determined to be available, in an available deque;
> computer code for triggering a resource pool shrink check;
> computer code for determining that pool shrinking is necessary;
> computer code for reducing resources in the unavailable deque; and
> computer code for subsequently reducing resources in the available deque.

Thus, Claim 1 defines computer code for maintaining two deques each holding a plurality of resources. The unavailable deque holds the resources that have been determined to be not created successfully or not able to be refreshed, and the available deque holds the resources

- 10 -

that have been determined to be available. Claim 1 further recites triggering a resource pool shrink check and determining that pool shrinking is necessary. At that point, Claim 1 defines reducing the resources in the unavailable deque and then reducing the resources in the available deque.

In the Office Action mailed on October 20, 2005, Examiner rejected claim 1 as being anticipated by Nageswaran. According to Examiner:

> "Nageswaran teaches a system and method for dynamically managing a thread pool of reusable threads in a computer system, wherein as the thread manager 132 commences the process of reducing number of threads 138 in the thread pool 136, threads that are idle (*unavailable, i.e., not able to be refreshed*) are prime candidates to be released (*i.e. reduced*) and the thread manager 132 would identify these idle threads (*i.e. read as unavailable threads*) in the idle thread queue 140 by their thread ID, and mark their state as "Being Removed" (*i.e. reducing resources in an unavailable queue*); and threads 138 that are created and/or available but not dedicated for any particular transaction are prime candidates to be released and the thread manager 132 would identify these threads (*i.e., read as available threads*) and mark their state as "Being Removed" (*i.e., reducing resources in an available deque*)." (Office Action page 11)

Applicants respectfully disagree. Nageswaran fails to disclose two deques that maintain the available and unavailable resources; reducing resources in the unavailable deque; and then reducing resources in the available deque.

First, Examiner has argued that Nageswaran's idle threads should be read as unavailable threads and threads that are created and/or available but not dedicated for any particular transaction should be read as available threads. This is not the case. Idle threads and threads that are available but not dedicated, are the <u>same threads</u> in Nageswaran. The term

- 11 -

"idle" by its definition implies that the thread is available and waiting to be assigned to a transaction. For example, as recited in Nageswaran, "Threads that are not dedicated for any particular transaction and are idle are prime candidates to be released." (Nageswaran col. 4, lines 6-7). As such, idle threads cannot be read as being both unavailable threads and available threads. Since Nageswaran only teaches releasing these idle threads, it fails to teach reducing resources in the unavailable deque and subsequently reducing the resources in the available deque, as recited in Claim 1.

Second, while Nageswaran appears to disclose that the thread manager maintains the number of busy threads (col. 3, lines 24-25) in order to calculate the thread use ratio, it fails to disclose any unavailable resources, as recited in Claim 1. The term "busy threads" as used in Nageswaran is not the same as the term "unavailable resources," as used in Claim 1. Busy threads appear to be threads that are processing some request, while unavailable resources, as recited in claim, are resources that have been not created successfully or not able to be refreshed. Nageswaran does not appear to disclose unavailable resources anywhere. Consequently it fails to teach "maintaining a plurality of resources that have been determined to be at least one of not created successfully and not able to be refreshed, in an unavailable deque" and "reducing resources in the unavailable deque," as recited in claim 1.

Third, Nageswaran fails to disclose maintaining two deques in order to separately store the idle threads from the unavailable threads. Only the idle threads appear to be stored in a queue in Nageswaran. This is unsurprising because the only other types of threads disclosed in Nageswaran are busy threads and they are busy executing requests and do not need to be stored in a separate queue. For example, as recited in Nageswaran, "all threads 138 currently marked as in use are obviously not eligible to be deleted." (col. 4, lines 4-5).

Presumably, the idle threads are kept in a queue in order to be later assigned to various requests, in Nageswaran. The embodiment in Claim 1, however, maintains resources in several

- 12 -

deques so as to enhance overall performance and maintenance of the resource pool. In this manner, various improvements are achieved for the application server.

In view of the above comments, Applicant respectfully submits that Claim 1, as amended, is neither anticipated by, nor obvious in view of the cited references, and reconsideration thereof is respectfully requested.

Claim 11

Claim 11 has been amended to more explicitly define the embodiment claimed therein. As amended, Claim 11 recites:

> *11.   A computer program product for execution by a server computer for performing resource pool maintenance for an application server, comprising:*
> *computer code for maintaining a pool of resources;*
> *computer code for triggering a resource testing check for the pool of resources;*
> *computer code for determining that a test on pool resources is necessary;*
> *computer code for determining whether at least one of the resources is functioning properly by performing the test on pool resources; and*
> *computer code for refreshing pool resources that have been determined to be not functioning properly based on the pool resources testing.*

Thus, Claim 11 defines computer code for maintaining a pool of resources, triggering a resource testing check for the pool and determining that a test on pool resources is necessary. Further, Claim 11 defines determining whether at least one of the resources is functioning properly by performing a test on pool resources, and refreshing those resources that have been determined to be not functioning properly.

In the Office Action mailed on October 20, 2005, Examiner rejected claim 11 as being anticipated by Nageswaran. According to Examiner:

"Nageswaran teaches the thread manager 132 periodically performs checking the ratio 146 and determining whether any of threads 138 is idle, not dedicated for any particular transaction, or busy (i.e. determining whether at least one of the resources/threads functioning properly)" (Office Action page 12).

Applicant respectfully disagrees. Nageswaran fails to disclose determining whether at least one of the resources is functioning properly by performing a test on pool resources, and refreshing those resources that have been determined to be not functioning properly.

First, determining whether a thread is idle or busy is not the same as determining whether a resource is functioning properly, as recited in Claim 11. A thread could be idle or busy and yet still be functioning properly. The terms "busy" or "idle" merely appear to describe whether a thread is executing or waiting to be assigned to some transaction, respectively. They do not describe whether that thread is not functioning properly or needs to be refreshed, as recited in Claim 11. Nageswaran does not appear to disclose any testing of whether a thread is functioning properly and then refreshing the thread according to that test. Thus, Nageswaran fails to teach this feature of Claim 11.

Second, releasing idle threads as disclosed in Nageswaran, is not the same as refreshing resources that have been determined not to be functioning properly, as recited in Claim 11. Nageswaran teaches releasing the idle threads once the thread use ratio is determined to be high (col. 3, lines 8-14). This appears to be done in order to keep the server from having to manage too many resources unnecessarily. Thus, by releasing idle threads, the server is freed up to enhance performance. Claim 11, on the other hand, recites refreshing the resources rather than releasing them. This is done in an attempt to fix the resources that are not functioning properly, rather than removing them altogether. In Nageswaran, once the thread is released it can no longer be refreshed. Refreshing the threads would appear to be of no use to

- 14 -

Nageswaran because the server would not be freed up by such actions. Thus, refreshing the thread would appear to go against the very purpose of Nageswaran. In this manner, Nageswaran actually teaches away from refreshing the thread or resource.

Claims 14, 18 and 20

Claims 14, 18 and 20 have been amended similarly to Claims 1 and 11 to more clearly define the embodiments therein. Applicant respectfully submits that Claims 14, 18 and 20 as amended, are likewise neither anticipated by, nor obvious in view of the cited references, and reconsideration thereof is respectfully requested.

Claims 4-10, 13 and 15

Claims 4-10, 13 and 15 are not addressed separately, but it is respectfully submitted that these claims are allowable as depending from an allowable independent claim, and further in view of the comments provided above. Applicant respectfully submits that Claims 4-10, 13 and 15 are similarly neither anticipated by, nor obvious in view of the cited references, and reconsideration thereof is respectfully requested.

It is also submitted that these claims also add their own limitations which render them patentable in their own right. Applicant respectfully reserves the right to argue these limitations should it become necessary in the future.

V.   Claim Rejections under 35 U.S.C. §103(a)

In the Office Action mailed on October 20, 2005, Claims 2-3, 12 and 16-19, were rejected under 35 U.S.C. 103(a).

Claims 2-3, 12 and 16-19 are not addressed separately, but it is respectfully submitted that these claims are allowable as depending from an allowable independent claim, and further in view of the comments provided above. Applicant respectfully submits that Claims 2-3, 12 and

16-19 are similarly neither anticipated by, nor obvious in view of the cited references, and reconsideration thereof is respectfully requested.

It is also submitted that these claims also add their own limitations which render them patentable in their own right. Applicant respectfully reserves the right to argue these limitations should it become necessary in the future.

VI. New Claims

The present Response hereby adds new Claims 21-26. Applicant respectfully submits that no new matter is being added and consideration thereof is respectfully requested.

VII. Conclusion

In view of the above amendments and remarks, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and reconsideration thereof is respectfully requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.
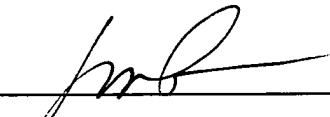
The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: 1/17/2006

By: _____

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- 16 -